AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An optical fixed attenuator comprising:

two optical fibers cojoined axially by fusion splicing following deformation of the fiber core and fiber mode field diameter (MFD), wherein the amount of deformation of the fiber core and mode field diameter (MFD) corresponding to a desired splice loss is calculated in advance of the deformation, and wherein the deformation of the fiber core and mode field diameter (MFD) is performed in dependence upon the calculated amount to achieve [[a]] the desired splice loss.

Claim 2 (currently amended): The optical fixed attenuator as recited in claim 1, wherein [[the]] a cleaning arc function of [[the]] a splicing machine is used to produce the deformation of the fiber core and mode field diameter (MFD) in [[the]] a vicinity of the fiber endfaces so as to be different from the other parts of the fibers prior to fusion splicing.

Claim 3 (currently amended): The optical fixed attenuator as recited in claim 1, wherein [[the]] a prearc function of [[the]] a splicing machine is used to melt the fiber end faces prior to splicing, wherein [[the]] a prearc level is controlled to achieve the specific splice loss by deforming the fiber core and mode field diameter (MFD) of the fiber in [[the]] a vicinity of the end faces of the

fibers so as to be different from that of the other parts of the fibers before fusion splicing.

Claim 4 (original): The optical fixed attenuator as recited in claims 2 or 3, wherein the amount of the deformation of the fiber core and mode field diameter (MFD) required to achieve the specific splice loss is calculated on the basis of a correlation that exists between the amount of the deformation of the fiber core and mode field diameter (MFD) in the vicinity of the fiber end faces and splice loss.

Claim 5 (currently amended): An apparatus for producing [[the]] attenuator splices comprising:

a means for moving a first fiber core to form a gap between an end face of the first fiber core and an end face of a second fiber core, and for moving the first fiber core toward the second fiber core to remove the gap; and

a plurality of electrodes performing a cleaning arc function by discharging an amount of cleaning arc which can be controlled to deform a fiber core and mode field diameter (MFD) in [[the]] a vicinity of the end faces of the fibers so as to be different from that of the other parts of the fibers before the fusion splicing to achieve [[the]] a specific splice loss, the electrodes performing the cleaning arc function when the end faces are spaced apart by the gap, the electrodes performing a fusion arc discharge for the fusion splicing when the gap is removed;

wherein the amount of the cleaning arc is computed in advance in dependence upon a

deformation quantity required to attain a desired optical attenuation;

wherein the fusion arc discharge intensity is computed in advance in dependence upon the specific splice loss desired to exist after the fusion splicing.

Claim 6 (currently amended): The apparatus as recited in claim 5 for producing the attenuator splices, further comprising:

a means for performing the computing of the amount of the cleaning arc discharge required to deform the fiber core and mode field diameter (MFD) of the end faces of the fibers to the desired amount before fusion splicing on the basis of a correlation that exists between an amount of the deformation of the fiber end faces and splice loss, and

a means for adjusting the characteristics of the cleaning arc discharge as computed by the means for computing the amount of the cleaning arc discharge.

Claim 7 (currently amended): The apparatus as recited in claim 5 or 6,

said plurality of electrodes ~~wherein~~ melting the end faces of the fibers with a pre-arcing function ~~, and which has a function~~ which can be controlled to deform the fiber core and mode field diameter (MFD) of the fiber in the vicinity of the end faces of the fibers so as to be different from that of the other part of the fiber before fusion splicing to achieve the specific splice loss.

Claim 8 (currently amended): The apparatus as recited in claim 7 further comprising:

a means for computing the characteristics of the prearcing discharge required to deform the fiber core and mode field diameter (MFD) in the vicinity of the end faces of the fibers before fusion splicing to an amount determined on the basis of a correlation that exists between the amount of deformation of the fiber end faces and the splice loss, and

a means for adjusting the characteristics of the prearcing discharge as computed by the means for computing the characteristics of the prearcing discharge.

Claim 9 (currently amended): An optical fixed attenuator formed by fusion splicing ends of two optical fibers to each other and disposed in an optical signal transmission line so as to manage light intensity of an optical signal being transmitted in the optical signal transmission lines to a constant value, wherein the optical fixed attenuator is formed by fusion splicing said ends of two optical fibers to each other, each said end being deformed in advance by an amount of arc computed in advance in dependence upon a deformation quantity required to attain a desired optical attenuation, so that a mode field diameter of each said end is different from a mode field diameter of a portion of the optical fiber except said end, and quantity of the deformation of said end introduced in advance is set to be a quantity required to attain a specific attenuation after the fusion splicing, wherein a fusion arc discharge intensity for the fusion splicing is computed in advance in dependence upon splice losses desired to exist after the fusion splicing.

Claim 10 (currently amended): A method for producing an optical fixed attenuator comprising:

moving a first fiber to form a gap between end surfaces of a first fiber and a second fiber;

performing an electric discharge step for removing dust adhered on each ~~end surface and its vicinity of two optical fibers~~ of the end surfaces and their vicinity when the end surfaces are spaced apart by the gap and before the ends of the two optical fibers are fusion spliced to each other so as to form the optical fixed attenuator, wherein quantity of the electric discharge for removing dust is computed in advance and is controlled to be a quantity required to deform said [[end]] ends of the optical ~~fiber~~ fibers in advance so that a mode field diameter of each said end of the optical fiber is different from a mode field diameter of a portion of the optical fiber except said end and each said end is deformed with a quantity of deformation required to attain a specific attenuation after the fusion splicing between said ends of the optical fibers;

moving the first fiber toward the second fiber to remove the gap; and

performing a fusion arc discharge step for the fusion splicing when the first fiber is moved toward the second fiber to remove the gap, wherein the fusion arc discharge intensity is computed in advance in dependence upon splice losses desired to exist after the fusion splicing.

Claim 11 (currently amended): A Method for producing an optical fixed attenuator comprising:

moving a first fiber to form a gap between ends of a first fiber and a second fiber;

performing a preheating step for melting the ends of the two optical fibers before said ends of the two optical fibers are fusion spliced to each other so as to form the optical fixed attenuator, wherein quantity of the preheating is computed in advance and is controlled to be a quantity required to deform said end of the optical fiber in advance so that a mode field diameter of each said end of the optical fiber is different from a mode field diameter of a portion of the optical fiber except said end and each said end is deformed with a quantity of deformation required to attain a specific attenuation after the fusion splicing between said ends of the optical fibers;

moving the first fiber toward the second fiber to remove the gap; and

performing a fusion arc discharge step for the fusion splicing when the first fiber is moved toward the second fiber to remove the gap, wherein the fusion arc discharge intensity is computed in advance in dependence upon splice losses desired to exist after the fusion splicing.

Claim 12 (original): The method for producing an optical fixed attenuator according to claim 10, wherein the quantity of deformation required to attain a specific attenuation is computed on the basis of a correlation between a quantity of deformation of said end calculated in advance and an attenuation due to the fusion splicing for a spliced part of said ends.

Claim 13 (original): The method for producing an optical fixed attenuator according to claim 11, wherein the quantity of deformation required to attain a specific attenuation is computed on the basis of a correlation between a quantity of deformation of said end calculated in advance and an

attenuation due to the fusion splicing for a spliced part of said ends.

Claim 14 (currently amended): An apparatus for producing an optical fixed attenuator, by which an electric discharge is carried out for removing dust adhered on each end surface and its vicinity of two optical fibers when the two optical fibers are spaced apart by a gap, and thereafter the gap is removed and ends of the two optical fibers are fusion spliced to each other by a fusion arc discharge so as to form the optical fixed attenuator, wherein quantity of the electric discharge for removing dust is set adjustable in a range including at least a quantity required to deform each said end of the optical fiber in advance so that a mode field diameter of each said end of the optical fiber is different from a mode field diameter of a portion of the optical fiber except said end and each said end is deformed with a quantity of deformation required to attain a specific attenuation after the fusion splicing between said ends of the optical fibers, wherein the fusion arc discharge intensity is computed in advance in dependence upon splice losses desired to exist after the fusion splicing.

Claim 15 (original): The apparatus for producing an optical fixed attenuator according to claim 14 comprising:

first computing means for computing the quantity of the electric discharge for removing dust required to deform said each end of the optical fiber with the quantity of deformation required to attain the specific attenuation on the basis of a correlation between a quantity of deformation of said end calculated in advance and an attenuation due to the fusion splicing for a fusion spliced part of

said ends; and

first adjusting means for adjusting quantity of the electric discharge for removing dust to the quantity of the electric discharge computed by the first computing means.

Claim 16 (currently amended): An apparatus for producing an optical fixed attenuator, by which a preheating is carried out when the two optical fibers are spaced apart by a gap for melting ends of two optical fibers before the gap is removed and said ends of the two optical fibers are fusion spliced to each other by a fusion arc discharge so as to form the optical fixed attenuator, wherein quantity of the preheating is set adjustable in a range including at least a quantity required to deform said end of the optical fiber in advance so that a mode field diameter of each said end of the optical fiber is different from a mode field diameter of a portion of the optical fiber except said end and each said end is deformed with a quantity of deformation required to attain a specific attenuation after the fusion splicing between said ends of the optical fibers, wherein the fusion arc discharge intensity is computed in advance in dependence upon splice losses desired to exist after the fusion splicing.

Claim 17 (original): The apparatus for producing an optical fixed attenuator according to claim 16 comprising:

second computing means for computing the quantity of the preheating required to deform said end of the optical fiber with the quantity of deformation required to attain the specific attenuation on the basis of a correlation between a quantity of deformation of said end calculated in

advance and an attenuation due to the fusion splicing for a fusion spliced part of said ends; and

second adjusting means for adjusting said quantity required to deform said end of the optical fiber in advance to the quantity of the preheating computed by the second computing means.

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